

WHAT IS CLAIMED IS:

1. A method for anodizing a component comprising the steps of:
placing the component in a container having first and second seal members;
sealing an annular surface of the component to be anodized using the first and second seal members to thereby form a reaction chamber bounded by the annular surface, the seal members and an inner surface of the container;
supplying a reaction medium to the reaction chamber through a supply passage formed in the container to thereby anodize the annular cylindrical surface.
2. The method of claim 1, wherein the step of supplying the reaction medium includes continuously circulating reaction medium through the reaction chamber.
3. The method of claim 1, further comprising the step of removing the reaction medium from the reaction chamber through a drain passage formed in the container.
4. The method of claim 3, wherein the steps of removing and supplying are conducted simultaneously to thereby circulate the reaction medium through the reaction chamber.
5. The method of claim 3, further comprising providing a passage plate in the container, the plate having the supply and drain passages, and wherein the component extends through an opening in the passage plate.
6. The method of claim 5, wherein the supply passage and the drain passage are formed on opposite faces of the passage plate.
7. The method of claim 5, further comprising the step of energizing the passage plate and the component to thereby form anodization electrodes.

8. The method of claim 7, wherein during the step of energizing the passage plate a portion of the passage plate adjacent the reaction chamber remains deenergized.
9. The method of claim 5, wherein the supply and drain passages each comprise a plurality of supply and drain grooves, respectively.
10. The method of claim 9, wherein the supply and drain grooves are arranged alternately around the opening of the passage plate.
11. The method of claim 3, wherein the reaction fluid is supplied into the reaction chamber and removed from the reaction chamber at different angles relative to the surface of the component.
12. The method of claim 5, wherein, the supply and drain passages are formed on an inner section of the passage plate to direct and drain the reaction medium from the reaction chamber at an angle of 90 degrees with respect to a line tangent to the component.
13. An apparatus for anodizing a component comprising:
 - a container having a receiving hole for receiving the component into the container;
 - first and second seal members for sealing an annular surface of the component to thereby form a reaction chamber between the container and the annular surface of the component.
14. The apparatus of claim 13, further comprising a supply passage in the container for introducing a reaction medium into the reaction chamber.

15. The apparatus of claim 14, further comprising a drain passage for draining the reaction medium from the reaction chamber.
16. The apparatus of claim 13, further comprising a first electrode for energizing the component.
17. The apparatus of claim 6, further comprising a second electrode for energizing the container adjacent to the reaction chamber.
18. The apparatus of claim 15, wherein the supply drain passages have openings into the reaction chamber about midway between the first and second seals.
19. The apparatus of claim 15, wherein the container includes a passage plate having an opening for the component to extend through, wherein the passage plate includes a supply groove and a drain groove opening into the reaction chamber.
20. The apparatus of claim 19, wherein the passage plate is positioned about midway between the first and second seals.
21. The apparatus of claim 19, wherein the passage plate is energized by the second electrode
22. The apparatus of claim 21, wherein a portion of the passage plate adjacent to the reaction chamber remains de-energized.
23. The apparatus of claim 19, wherein the supply groove and the drain groove are formed on opposite sides of the passage plate.

24. The apparatus of claim 22, wherein the supply groove and the drain groove extend in a direction generally perpendicular to the surface being anodized.

25. The apparatus of claim 19, wherein the supply groove and the drain groove comprise plural supply grooves and plural drain grooves, the supply grooves and the drain grooves being arranged alternately to each other around the opening in the passage plate.

26. The apparatus of claim 25, wherein each supply groove extends toward the component at a different angle from each drain groove.

27. The apparatus of claim 19, further comprising an electrode rod abutting the passage plate outside the reaction chamber for energizing the passage plate.

28. The apparatus of claim 13, wherein the first and second seal members are placed on flange portions formed in the container, and further comprising:

a push mechanism for compressing the first and second seal members so as to seal the outer surface of the component, the push mechanism including a movable sleeve disposed between the component and the container, and a push rod disposed in the container for pushing the sleeve.

29. The apparatus of claim 27, wherein the first and second sealing members are placed on flange portions formed in the container, and further comprising:

a push mechanism for compressing the first and second seal members so as to seal the outer surface of the component, the push mechanism including a movable sleeve disposed between the component and the container, and a push rod disposed in the container for pushing the sleeve.

30. The apparatus of claim 29, wherein the container includes first and second members separated at the annular surface being anodized, the first and second members being provided with the flange portions for holding thereon the first and second seal members wherein the passage plate is located between the first and second members and the supply passage and the drain passage are each formed in the first member and the second member, respectively, and

wherein the reaction chamber is formed between the first member, the second member, and the annular surface.